

C800 Automation-Compatible Mail

C820 Flats

Summary C820 describes dimensions and flexibility criteria for FSM (flat sorting machine) 881 and FSM 1000 processing for automation-compatible flats. It also explains polywrap specifications and required endorsements for polywrapped mailpieces. Also covered are the uses of tabs, wafer seals, tape, outside labels and stickers on flats, and the uniformity of exterior surface.

1.0 BASIC STANDARDS

Flats claimed at automation rates must meet the standards in 1.0 through 8.0 and the general and specific standards for mailability and the class of mail and rate claimed. Pieces may qualify for the discount based on either the dimensions and characteristics for FSM 881 processing under 2.0 or the dimensions for FSM 1000 processing under 3.0. If polywrap is used with pieces that meet the FSM 881 dimensions and characteristics under 2.0, the polywrap must meet all of the physical properties in Exhibit 4.1a and Exhibit 4.1b in order to qualify for the automation flats discount. Pieces that meet FSM 1000 criteria and do not meet *all* of the FSM 881 criteria that are prepared in polywrap must only meet physical property number 2 (haze) in Exhibit 4.1a and the criteria in Exhibit 4.1b.

2.0 DIMENSIONS AND CRITERIA FOR FSM 881 PROCESSING

Determining Length and Height

2.1

The length and height of an automation-compatible flat-size mailpiece is not determined by the orientation of the address. Instead, for this standard:

- a. For a piece prepared as a single sheet or in an envelope, full-length wrapper, or full-length sleeve, the length is the longest dimension. The height is the dimension perpendicular to the length.
- b. For a piece that has a bound or folded edge (e.g., a self-mailer, magazine, newsletter, and folded envelope), the height is the dimension parallel to the bound or folded edge. The length is the dimension perpendicular to the height. If the piece is folded more than once or bound and then folded, the height of the mailpiece is based on the final fold.

Final Fold

2.2

A flat-size piece with a final fold must be designed so that the address is in view when the final folded edge is to the right and any intermediate bound or folded edge is at the bottom.

Shape and Size

2.3

Each flat-size piece must be rectangular and:

- a. For height, no more than 12 or less than 6 inches high.
- b. For length, no more than 15 or less than 6 inches except that pieces may be:
 - (1) 5 inches long if from 6 to 7-1/2 inches high; or
 - (2) 5-3/8 inches long if more than 7-1/2 inches high but no more than 9-1/2 inches high.
- c. For thickness, no more than 0.75 or less than 0.009 inch thick.

Maximum Weight

2.4

Maximum weight limits are as follows:

- a. For First-Class Mail, 13 ounces.
- b. For Periodicals, 16 ounces.

Turning Ability and Deflection

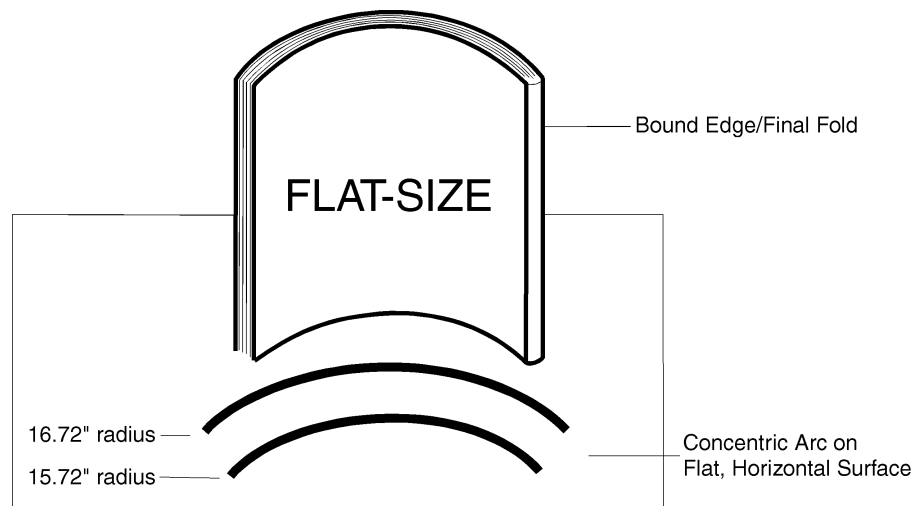
2.5

c. For Standard Mail, less than 16 ounces.

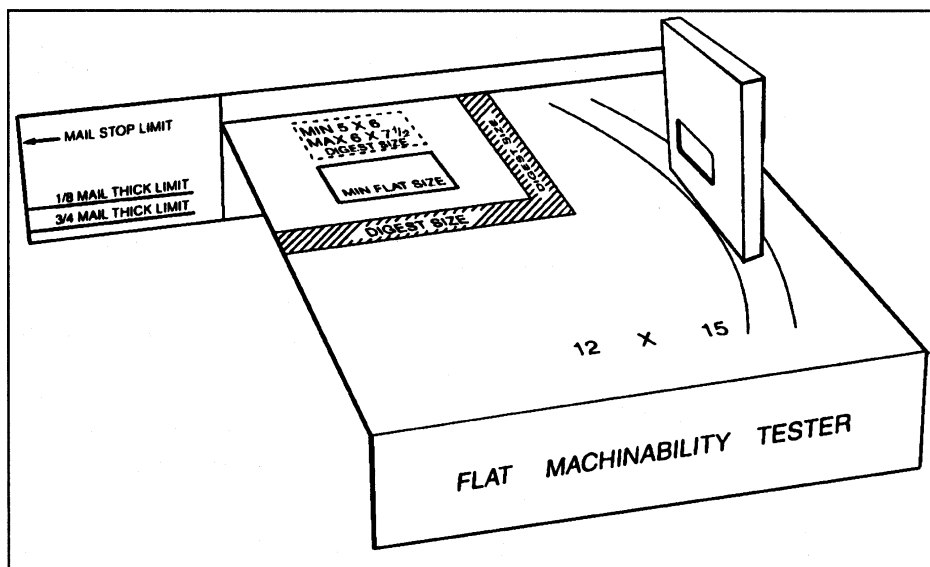
- a. Turning Ability. The mailpiece must fit in one of these ways between two concentric arcs drawn on a horizontal flat surface, one with a radius of 15.72 inches and the other with a radius of 16.72 inches:
 - (1) The piece must be flexible enough to bend between the two arcs when positioned vertically, with (if applicable) the bound, folded, or final folded edge perpendicular to the surface where the arcs are drawn (see [Exhibit 2.5a\(1\)](#)).
 - (2) If rigid (constructed of or containing inflexible materials), the piece must be small enough to allow its longest edge to be placed between the two arcs without touching the lines of the arcs (see [Exhibit 2.5a\(2\)](#)).
- b. Deflection. A flat-size mailpiece meeting the FSM 881 dimensions must be rigid enough so that, when placed flat on a surface to extend unsupported 5 inches off that surface, no part of the edge of the piece that is opposite the bound, folded, or final folded edge (as applicable) deflects more than 1-3/4 inches (if the piece is less than 1/8 inch thick) or more than 2-3/8 inches (if the piece is from 1/8 to 3/4 inch thick). See [Exhibit 2.5b](#).
- c. Test Device. Testing for compliance with the above standards must be done with a flat mail machinability tester constructed to USPS specification USPS-STD-28 and following the instructions for use of that device. Information about the availability or use of the tester may be obtained from USPS area or district customer service support offices.

Turning Ability Flexible Flat

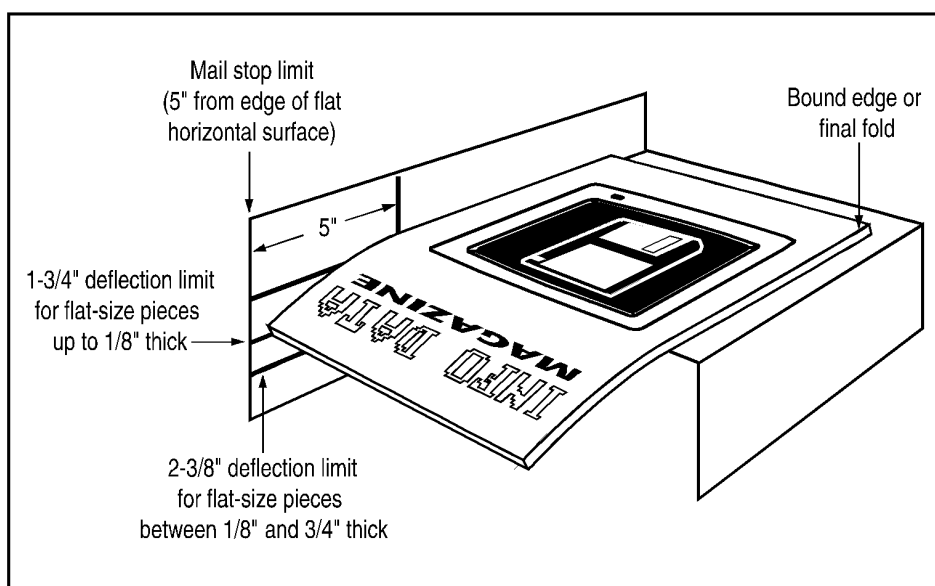
Exhibit 2.5a(1)



**Turning Ability
Rigid Flat**
Exhibit 2.5a(2)



**Deflection
Flat-Size Mail**
Exhibit 2.5b



3.0 DIMENSIONS FOR FSM 1000 PROCESSING

**Determining Length
and Height**
3.1

The length and height of an automation-compatible flat-size mailpiece eligible for FSM processing is not determined by the orientation of the address. It is determined by the following:

- For a piece prepared as a single sheet or in an envelope, full-length wrapper, or full-length sleeve, the length is the longest dimension. The height is the dimension perpendicular to the length.
- For a piece that has a bound or folded edge (e.g., a newspaper, tabloid, and catalog), the length is the dimension parallel to the bound or folded edge. The height is the dimension perpendicular to the length. If the piece is folded more than once or bound and then folded, the length of the mailpiece is based on the final fold.



**Address Placement
and Folded Pieces**
3.2

The following requirements apply to folded publications:

- a. A flat-size piece with a final fold must be designed so that the address is in view when the final folded edge is to the right and any intermediate bound or folded edge is at the bottom.
- b. Unbound flat-size pieces must be double-folded.

Shape and Size
3.3

Pieces must meet the following requirements:

- a. Height: no more than 12 inches or less than 4 inches.
- b. Length: no more than 15-3/4 inches or less than 4 inches.
- c. Minimum thickness:
 - (1) For pieces at least 5 inches long, 0.009 inch.
 - (2) For pieces at least 4 inches long but less than 5 inches long, greater than 0.25 inch.
- d. Maximum thickness:
 - (1) For pieces 13 inches long or less, 1.25 inches.
 - (2) For pieces longer than 13 inches up to and including 15-3/4 inches, 7/8 inch.

Maximum Weight
3.4

Maximum weight limits are as follows:

- a. For First-Class Mail, 13 ounces.
- b. For Periodicals, 6 pounds.
- c. For Standard Mail, less than 16 ounces.

4.0 COVERINGS

Polywrap Films
4.1

Mailers may wrap their automation flats in polywrap films provided the films meet the requirements described in [Exhibit 4.1a](#) and [Exhibit 4.1b](#). The Postal Service will allow plastic manufacturers to use the results of their American Standard Testing Methods (ASTM) product tests to certify that the polywrap films meet or exceed the minimum properties in [Exhibit 4.1a](#).

**FSM 881 Polywrapped
Flats Specifications**
Exhibit 4.1a

Polywrapped automation flats that meet the dimensions and the turning ability and deflection characteristics for the FSM 881 in [2.0](#) must be prepared with polywrap that meets all seven properties in this exhibit. For other pieces prepared with polywrap that do not meet *all* of the dimensions and characteristics for processing on the FSM 881 and that meet the dimensions and other criteria for FSM 1000 processing in [3.0](#), the polywrap must only meet physical property number 2 (haze). (For example, pieces that meet both the dimensions of [2.0](#) and the dimensions in [3.0](#), but do not meet the turning ability and deflection requirements under [2.0](#), will be considered FSM 1000 pieces and need only meet physical property number 2.)

Property	Requirement	Test Method	Comment
1. Kinetic Coefficient of Friction, MD			Stainless steel finish must be in accordance with ASTM A 480/A 480M.
a. Film on Stainless Steel with No. 8 (Mirror) Finish	<0.28	ASTM D1894	
b. Film on Film	0.20 to 0.40	ASTM D1894	
2. Haze	<70	ASTM D1003	Address labels are an alternative to meeting this requirement.

Property	Requirement	Test Method	Comment
3. Secant Modulus, 1% elongation			
a. TD, psi	>40,000	ASTM D882	
b. MD, psi	>50,000	ASTM D882	
4. Tensile Strength			
a. TD, psi	>2,000	ASTM D882	
b. MD, psi	>3,000	ASTM D882	
5. Density, g/cc	0.900 to 0.950	ASTM D1505	
6. Nominal Gauge, in	>0.001	ASTM D374	
7. Static Charge, kV	<2.0	ASTM D4470	Antistatic additives can regulate this charge.

Wrap Instructions

Exhibit 4.1b

1. Wrap direction shall be specified as around the shorter axis of the mailpiece so that the seam is along the addressed side of the mailpiece and oriented from top to bottom. This seam must not cover any part of the address and barcode read areas (FSM 881 mailpieces only).
2. Overhang around edges:
 - a. For FSM 881 mailpieces, overhang (selvage) of not more than 1.5 inches of polywrap shall be allowed at the top of the mailpiece when the contents are at the bottom of the package. Overhang on each side shall not be more than 0.25 inch. The piece shall not be wrapped so tightly as to cause the mailpiece to bend.
 - b. For FSM 1000 mailpieces, overhang (selvage) cannot exceed 3/4 inch from any edge.

Polywrap Certification Process

4.2

The polywrap certification program requires plastic manufacturers to provide to the producer of the polywrapped flats an official ASTM certification of conformance verifying that their polywrap product meets the physical properties described in [Exhibit 4.1a](#). Prior to the initial mailing with that polywrap product, the producer of the polywrapped pieces must submit to a mailpiece design analyst (MDA) the certificate of conformance verifying that the polywrap material meets the physical property specifications in [Exhibit 4.1a](#), for either the FSM 881 mailpieces or the FSM 1000 mailpieces. The MDA will certify the polywrap product as either FSM 881 or FSM 1000 approved automatable polywrap if the ASTM certification of conformance shows it meets the applicable specifications. The MDA who certifies the polywrap will provide written confirmation to the producer of the polywrapped flats and notify the applicable business mail entry unit of the certification.

Mailpiece Identification

4.3

Polywrapped flats must be endorsed to show that the polywrap has been approved by the USPS as automation compatible. This requirement may be met by printing "USPS FSM 881 Approved Polywrap" or "USPS 881 Approved Poly" or "USPS FSM 1000 Approved Polywrap" or "USPS 1000 Approved Poly," as applicable, on the address side of the piece(s), preferably below the postage area or in another visible location on the outside of the mailpiece. The polywrap marking may be printed directly onto the polywrap material. The polywrap marking must not interfere with the delivery address or the recognition of the barcode. A list of polywrap products approved by the Postal Service appears on the USPS Web site (<http://ribbs.usps.gov>).

Suspension of Approval

4.4

Any mailing found to be improperly prepared will not be accepted at the automation rates for flats. The repeated submission of nonmachinable mailings is cause for exclusion from the polywrap flat automation rates for polywrap pieces.

FSM 881 Polywrap

4.5

Mailpieces that meet the dimensions and the turning ability and deflection characteristics in [2.0](#) are able to be processed on the FSM 881, and therefore must meet all of the polywrap requirements in [Exhibit 4.1a](#).

FSM 1000 Polywrap

4.6

Polywrapped pieces that do not meet all of the dimensions and characteristics in [2.0](#) but that meet the dimensions in [3.0](#) and other criteria for FSM 1000 processing



may be prepared in polywrap meeting only the haze requirement, property number 2.

5.0 PROHIBITIONS

Protrusions 5.1 Clasps, strings, buttons, or like materials, or other protrusions that impede or damage mail processing equipment are prohibited.

Staples 5.2 Staples must not be substituted for tabs or wafer seals on pieces in automation rate mailings. As a binding method, staples may be placed in the fold or spine of a magazine or booklet-type or similar mailpiece if parallel with the bound edge, tightly and securely inserted, and not protruding to damage or interfere with mail processing equipment.

6.0 TABS, WAFER SEALS, TAPE, AND GLUE

General 6.1 Although not required, mailpieces may be prepared with tabs, wafer seals, cellophane tape, or permanent glue (continuous or spot) if these sealing devices do not interfere with the recognition of the barcode, rate marking, postage information, and delivery and return addresses. Cellophane tape may not be placed over the barcode or where any part of the barcode will be printed. Tabs or seals placed in the area on which any part of the barcode is printed must contain a paper face meeting the standards for background reflectance. Tabs, wafer seals, and tape must have a peel adhesion (shear strength) value of at least 15 ounces/inch at a speed of 12 inches/minute after application to a stainless steel plate; the test is to be conducted 10 minutes after the material is applied to the plate.

Short Covers 6.2 Flats may be prepared with a cover page or protective cover that is more than 3/4 inch from each edge if the cover page is secured with at least two tabs, wafer seals, or glue spots placed within 1 inch of the top and bottom edges of the cover page or protective cover.

7.0 UNIFORMITY

Surface 7.1 The exterior surface of a flat-size mailpiece must not have protuberances caused by prohibited closures; attachments (except as provided below); irregularly shaped or distributed contents; or untrimmed excess material from the envelope, wrapper, or sleeve.

Outside Attachment 7.2 An attachment to a flat-size mailpiece must be a single sheet, the same size as the cover. The attachment must be permanently, securely, and uniformly affixed to the front or back cover along a bound, folded, or otherwise closed edge. Pieces claimed at a Periodicals rate may bear attachments only if permitted by the applicable standards.

Contents 7.3 The contents of a flat-size mailpiece must be of approximately uniform thickness. Where applicable, the contents must also be of approximately the same size as the envelope, wrapper, or sleeve in which mailed. If the contents are of irregular thickness or significantly smaller than the envelope, wrapper, or sleeve in which mailed, those contents must be secured in place, if necessary, to prevent shifting within the wrapping during processing.

Regular Shape 7.4 Each flat-size mailpiece must have a smooth and regular shape, free of creases, folds, tears, or other irregularities not compatible with processing on automated equipment.

Booklet-Type Piece or Magazine

7.5

The contents of flat-size mailpieces prepared in sleeves or other wrappers must be sufficiently secure in the sleeve or wrapper to stay in place during processing. If material bearing the delivery address or barcode for the mailpiece is enclosed in a partial wrapper, that wrapper must be sufficiently secure to prevent the contents from shifting and obscuring the delivery address or barcode.

8.0 OUTSIDE LABELS AND STICKERS**Use**

8.1

Permanent labels and stickers (i.e., those designed not to be removed or relocated) must be affixed directly to the outside of the mailpiece with permanent adhesive. A mailer may provide recipients with relocatable labels to place on the outside of response pieces sent back to the mailer. On pieces mailed at Periodicals rates, labels and stickers may be used only if permitted by the applicable standards.

Pressure-Sensitive Label

8.2

Any pressure-sensitive label or sticker affixed directly to a mailpiece before mailing must have a minimum peel adhesion to stainless steel of 8 ounces/inch. This standard does not apply to pressure-sensitive labels provided by the USPS to label packages to sortation levels.

“Sandwich” Label

8.3

A face stock/liner label (“sandwich” label) is a two-part unit with a face stock (top label) attached to a liner (bottom label) affixed to the mailpiece. The face stock must have a peel adhesion value of at least 2 ounces/inch with respect to the liner label and at least 8 ounces/inch when reapplied to stainless steel.

